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agronomy guide

COOPERATIVE EXTENSION SERVICE, PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA

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Selecting Corn Hybrids

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Choosing corn hybrids for next season is a major management decision for an Indiana crop producer. In fact, it could be the most important decision he makes. But 'right' choices don't just happen; they are the result of a careful selection process.

This publication deals with developing such a process. It looks at the things to consider in selecting hybrids including: where to get and how to use yield performance data, advantages and drawbacks of various maturities, growing special types of corn or corn under irrigation, and other selection guidelines.

YIELD PERFORMANCE

Yield is the major criterion for hybrid selection. However, it should be interpreted in terms of *net income per acre* rather than total bushels per acre, because factors such as maturity, consistent performance and lodging resistance must also be considered.

Useful information for selecting high-performance hybrids is available to Hoosier corn growers from several sources. Following is a brief discussion of each source, the type of information it provides and how to use that information in your hybrid selection process.

Purdue Evaluation Trials

The Purdue University corn performance trials provide the most meaningful comparisons of corn hybrids from different companies. Data from field trials conducted at various test locations throughout the state are summarized by Purdue research agronomists and reported annually in an Agricultural Experiment Station Bulletin, entitled, "Performance of Commercial Dent Corn Hybrids in Indiana." The figures are usually for 2 or more

years, which is important for predicting how a hybrid will perform under a range of environmental conditions.*

In addition to yield data, the publication also carries information on maturity and percent lodging. Since all hybrids at a given location are harvested on the same date, moisture content at harvest indicates whether a hybrid is early-, mid- or full-season. Corn dries in the field at the rate of $\frac{1}{2}$ percentage point per day, if normal drying conditions prevail. Thus, a hybrid with 5 percent more moisture at harvest needs about 10 more days to dry to the same harvest moisture content.

Lodging percentage at harvest is a good measure of a hybrid's resistance to stalk rot and ability to withstand wind, insects and plant diseases. When only a few plants are lodged at harvest, grain losses in the field will be small.

Data in the current year's corn performance bulletin provide an excellent guide to hybrid selection for next year's planting.

Local Demonstration Plots

Other sources of information for evaluating hybrids are well-managed local corn demonstration plots sponsored by county Extension groups, FFA chapters, seed companies, etc. To be effective, these testing programs should have at least three replications for each hybrid. Such programs are even better if several locations within a county or multi-county area combine their results, thus providing test data from a variety of environmental conditions.

* The updated edition of "Performance of Commercial Dent Corn Hybrids in Indiana" is available around January 1 of each year at county Cooperative Extension Service offices or from the CES Publications Mailing Room, 301 South 2nd Street, Lafayette, IN 47905.

Strip tests or plots with each hybrid entered only once are of little value for yield comparison. Field variation usually is greater than most hybrid differences in such tests, so hybrid ranking may be misleading. Strip plots, however, are valuable for making observations on plant characteristics, maturity, disease resistance, etc.

On-Farm Testing

On-farm testing is also a useful tool in hybrid selection. Its greatest value is for making a final comparison under your own production practices. However, the comparison should be limited to no more than 10 hybrids.

Choose for testing those hybrids that have shown superior yield potential for your area. Consider the top ten performers in the Purdue evaluation trials conducted nearest your area, or ask for recommendations from local seed company representatives. But be sure that the hybrids you test are genetically different. Several companies may be marketing a given hybrid; and it is possible for a farmer to plant the two best hybrids from each of a number of companies and actually be testing only three or four different ones.

A successful on-farm corn hybrid evaluation program takes time, and it is likely to compete with the planting and harvesting of the main crop. Test plots should be planted as close as possible to optimum planting dates; waiting until after the main crop is in would not allow a fair comparison.

Hybrid selection decisions made on the basis of test plot results can be no better than the care of conducting the test. Therefore, good management is essential. Fertility level should be such as not to limit performance, and good weed control is a must. Also, keep accurate notes on maturity, ear placement, lodging resistance, disease resistance and other characteristics. For more accurate evaluation of lodging resistance, later harvesting is desirable.

If yield data are to be taken from on-farm test plots, randomization and replication are necessary. Each hybrid must be planted on three or four sites to reduce the effects of variation in soil type, fertility, drainage, etc. At least one row of buffer area should be left between harvested areas for adjacent hybrids.

Test any hybrid at least 2 years before adopting it for large acreage or eliminating it; in other words, *don't overemphasize the results of a single year.* And be sure to correct yields for moisture differences. Wet yield rankings are often the

reverse of the ranking of yields adjusted to 15.5 percent moisture.

Commercial Seed Company Data

Most commercial seed corn companies conduct extensive testing programs. These programs are usually of greatest value in comparing available hybrids within a given company. The data are often from test plots at many locations; and for many lines, they represent several years of testing.

It's worth your time to watch a commercial seed company harvest its test plots. You not only obtain the performance results firsthand, but also can gain excellent information about testing techniques.

MATURITY

Under favorable fertility and weather conditions, highest yields come from full-season hybrids. They tend to make optimum use of the growing season, plant nutrients and moisture supply.

Earlier hybrids are useful if earlier harvest is necessary, or planting must be delayed, or for other special situations. The yield disadvantages of early hybrids may be partly overcome by planting higher populations, as well as by taking advantage of early markets and reduced drying costs.

Planting hybrids of varying maturities over a several-week period helps spread the risk of unfavorable weather at critical stages and, if carefully planned, can also spread out the harvest period.

FERTILITY AND HERBICIDE SELECTIVITY

Response differences among hybrids are influenced much more by soil type and climate than by soil fertility. Therefore, do not view soil test level as a major factor in choosing a hybrid. Attempt to overcome fertility limitations with sound management rather than by hybrid selection.

Some hybrids are sensitive to certain herbicides used on corn. When such is the case, seed companies will make special mention of that fact. Be alert to and follow their recommendations on any herbicides to be avoided with a given hybrid.

SPECIAL TYPES OF CORN

Although there are some "silage corn" hybrids on the market, generally speaking, good grain-producing hybrids are also well suited for top silage

production. Later-maturing hybrids can be used for silage since grain drydown is not critical.

Premium markets are sometimes available for waxy, high-amylose, white, high-lysine or other special corn types. But unless such circumstances provide an incentive for growing these special types, normal yellow dent corn will still be the best choice. In fact, it's usually wise to grow special types only under contract with a guaranteed premium or where your livestock enterprise may benefit.

IRRIGATION

Hybrids to be grown under irrigation should be selected on the basis of these characteristics: (1) good stalk strength when planted at high population rates, (2) resistance to leaf blights and other diseases under high humidity, and (3) high yield potential under good management. These characteristics are desirable for all situations, but are especially important for irrigated corn.

ADDITIONAL SELECTION GUIDELINES

Here are some other things to consider in choosing corn hybrids. Don't minimize the importance of any of these suggestions.

1. Always be looking for better hybrids to fit each management situation on your farm. Growing the right corn in the right place could make you more money than anything else you do!

2. Don't be "married" to one brand or one seed salesman. It may pay to buy from several sources; but be sure the different hybrids you buy are genetically different.

3. Know the characteristics of the different top hybrids in your area. That's more important than brand name. Each company has several good hybrids with distinct characteristics.

4. Keep trying several promising lines on a small scale each year. When you do, keep good notes and take accurate yield checks; it will pay off in future seed selection decisions.

5. Early ordering is one way to be certain you get the hybrids you want. But weigh the price discounts for ordering early against the value of waiting for the current year's corn performance test results.

6. Don't be afraid to buy a different size or grade of seed to get the hybrid you want. Flat or round, large or small—the genetic makeup of a given hybrid is the same and the yield potential should be no different. Just be sure to use the proper planter plates.

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